Abundance of King Rails on the Floodplain.

Expectation: Significant increase in abundance of King Rails (*Rallus elegans*) using floodplain wetlands.

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Relevant Endpoints: Sociopolitical - Numbers of Birds
Restoration - Biological Integrity - Population Abundance
Restoration - System Functional Integrity - Habitat Quality
Restoration - System Functional Integrity - Habitat Use

Baseline Condition: In one year of monthly call/response surveys, no rails were observed using floodplain broadleaf marshes. However, during monthly baseline point counts, a total of 9 rails were flushed out of broadleaf marsh survey sites in Pools A, B, and C. These observations resulted in breeding season abundance of 0.0 birds/ survey in Pool A and 0.11 $\pm$ 0.11 birds/ survey in Pool C broadleaf marshes. Nonbreeding season abundance was 0.04 $\pm$ 0.04 birds/survey in Pool A and 0.02 $\pm$ 0.02 birds/survey in Pool C broadleaf marshes.

Reference Condition: King Rails were frequently observed during historic boat surveys of the Kissimmee River. In fourteen historic surveys of the river and adjacent habitat, mean abundance of King Rails was 2.0 $\pm$ 0.38 (National Audubon Society, 1939-54). Because these surveys were not specifically designed to census rails, these data likely underestimate actual use of the historic river by rails. In addition, these surveys focused on habitat that could be viewed from a boat while traveling down the river. No surveys were conducted in historic floodplain wetlands, although rails were probably common based on the amount of good quality habitat available (Toth 1990) and their frequency along the river channel (National Audubon Society, 1939-54).

King Rails forage visually for crayfish and other crustaceans, aquatic insects, and frogs (Meanley 1992) in dense wetland vegetation or open areas a few steps from cover. In the historic system, well developed broadleaf marshes extended up to the river bank, providing excellent cover for King Rails foraging along the channel. In addition, a band of wet prairie habitat along the upper edge of the floodplain provided habitat for foraging and nesting (Toth et al 1995).

Mechanism for Achieving Expectation: Response by King Rails will depend on restoration of foraging and nesting habitat. Restoration of flooding regimes and hydroperiod will encourage re-establishment of floodplain wetlands (Toth 1991, Toth et al. 1995). Increased river-floodplain interaction will facilitate increased prey abundance in floodplain wetlands (Toth 1991, Harris et al. 1995, Trexler 1995). Reestablished natural hydroperiods will concentrate prey in drying wetlands and thus improve foraging habitat for rails. An increase in wet prairie dominated by grasses and sedges will provide ideal nesting habitat for King Rails (Meanley 1992), increasing the local population using the floodplain for foraging.

Adjustments for External Constraints:	Locally, the range of King Rails has contracted due to extensive loss of wetlands (Meanley 1992), which may result in a lack of response to restoration of floodplain wetlands.
Means of Evaluation:	Because King Rails are very secretive and difficult to census, we will use monthly call-response surveys as well as point counts in at least three sites in floodplain broadleaf marshes, especially along the edge where it is adjacent to wet prairie. Post-restoration data will be compared to baseline data and the expectation will be met when abundance of King Rails observations is significantly greater ($P \geq 0.05$) than that of baseline surveys. This analysis will be conducted separately for each phase of restoration.
Time Course:	Emergent wetlands with abundant crustaceans and aquatic insects are expected to increase quickly, so a response by King Rails will likely occur within one year of inundation of floodplain wetlands.

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